



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,930	10/11/2001	Jussi Sipola	P 284001 T200013US/MY L/k	5448
909	7590	02/08/2005	EXAMINER LUGO, DAVID B	
PILLSBURY WINTHROP, LLP P.O. BOX 10500 MCLEAN, VA 22102			ART UNIT 2637	PAPER NUMBER

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/973,930	<b>Applicant(s)</b> SIPOLA, JUSSI	
	<b>Examiner</b> David B. Lugo	<b>Art Unit</b> 2637	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 15-18, 29-32 and 43-49 is/are rejected.
- 7) ☒ Claim(s) 5-14, 19-28 and 33-42 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/20/01</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because in the last line "(Figure 8f)" should be deleted. Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

2. Claims 9-14, 20, 21, 23-28, 30-32, 34 and 36-42 are objected to because of the following informalities:

- a. Claim 9, line 4, it is unclear what is being referred to by "whose".
- b. Claim 12, line 2, "at provided the changing point" should be --at the provided changing point--.
- c. Claim 20, line 2, "the means for changing" should be --means for changing--.
- d. Claim 21, line 2, "the means for changing" should be --means for changing--.
- e. Claim 23, lines 3-4, "the interleaving set" should be --an interleaving set--.
- f. Claim 23, line 4, it is unclear what is being referred to by "whose".
- g. Claim 28, line 2, "the means for adjusting" should be --means for adjusting--.
- h. Claim 30, line 2, it is suggested that "comprises the means" be replaced with --comprises means--.
- i. Claim 31, line 2, it is suggested that "comprises the means" be replaced with --comprises means--.
- j. Claim 32, line 2, it is suggested that "comprises the means" be replaced with --comprises means--.
- k. Claim 34, line 2, "the means for changing" should be --means for changing--.

Art Unit: 2637

- l. Claim 36, line 2, "the means for changing" should be --means for changing--.
- m. Claim 37, line 4, it is unclear what is being referred to by "whose".
- n. Claim 41, line 1, "the means for changing" should be changed to correspond with the "means for selecting" recited in claim 40.
- o. Claim 42, line 2, "the means for adjusting" should be --means for adjusting--.
- p. Claims 10, 11, 13, 14, 24-27 and 38-40 are objected to for being dependent from an objected claim.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 15-18, 29-32 and 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hakansson et al. U.S. Patent Application Publication 2004/0062274 in view of Ross U.S. Patent 4,901,319.

5. Regarding claims 1, 15 and 29, Hakansson et al. disclose a radio system that combines rectangular interleaving and diagonal interleaving, where the interleaving method is selected depending on the type of information block to be transmitted (page 3, para. 27), where the type of interleaving used is based on whether the frame is an SID frame or a frame used for source data, the frame types are signalled using particular bit patterns for identification (page 4, para. 53), and the symbol blocks are de-interleaved at a receiver.

Art Unit: 2637

6. Hakansson et al. do not disclose that a block specific interleaving depth may be included in signalling data and used to de-interleave the data.

7. Ross discloses a transmitting system with adaptive interleaving where the interleaving depth is determined according to channel conditions (col. 3, lines 4-43), and the receiver receives signalling data corresponding to the interleaving depth and controls de-interleaving according to the transmitted interleaver depth information (col. 4, lines 44-63).

8. It would have been obvious to one of ordinary skill in the art to control interleaving depth as taught by Ross, in the system of Hakansson et al. to provide the minimum time delay necessary to obtain good error correction in view of changing channel conditions (col. 5, lines 22-29).

9. Regarding claims 2, 16 and 30, the frame with the corresponding interleaving type is identified based on an identification field in a frame (page 4, para. 55), which is considered part of a sub-block.

10. Regarding claims 3, 4, 17, 18, 31 and 32, Hakansson et al. and Ross do not expressly disclose that the interleaving depth and method type are signalled the receiver using separate information blocks or using a separate signalling channel. However, transmission of control information via a separate information blocks or using a separate signalling channel is well known in the art.

11. It would have been obvious to one of ordinary skill in the art to transmit the interleaver depth and type identification data using either separate information blocks or a separate signalling channel as a matter of design choice.

12. Regarding claim 43, the transmitter is considered to be located in a subscriber terminal.

Art Unit: 2637

13. Regarding claims 44 and 45, the transmitter is considered to be located in a network/control part of the radio system.

14. Claims 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart U.S. Patent 5,563,915 in view of Ross.

15. Regarding claim 46, Stewart discloses a receiver comprising a de-interleaving network 18 which incorporates different types of de-interleaving functions (col. 1, lines 49-52), selected depending on the state of a control signal (col., 2, lines 64-66) which may be generated from a received signalling stream (col. 3, lines 8-9).

16. Stewart does not disclose that a block specific interleaving depth may be included in signalling data and used to de-interleave the data.

17. Ross discloses a transmitting system with adaptive interleaving where the interleaving depth is determined according to channel conditions (col. 3, lines 4-43), and the receiver receives signalling data corresponding to the interleaving depth and controls de-interleaving according to the transmitted interleaver depth information (col. 4, lines 44-63).

18. It would have been obvious to one of ordinary skill in the art to control interleaving depth as taught by Ross, in the system of Stewart to provide the minimum time delay necessary to obtain good error correction in view of changing channel conditions (col. 5, lines 22-29).

19. Regarding claim 47, the receiver is considered to be located in a subscriber terminal.

20. Regarding claims 48 and 49, the receiver is considered to be located in a network/control part of the radio system.

Art Unit: 2637

***Allowable Subject Matter***

21. Claims 5-14, 19-28 and 33-42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and rewritten or amended to overcome the objections set forth in this Office action.


***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David B. Lugo whose telephone number is 571-272-3043. The examiner can normally be reached on M-F; 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David B. Lugo  
2/4/05

  
KHAI TRAN  
PRIMARY EXAMINER 2/7/05